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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
TRAN, NGUYEN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,710	USUI, HIROSHI	
	Examiner	Art Unit	
	Nguyen Tran	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 July 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/31/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 5793621, hereafter '621) in view of Yamada et al. (US 6714425, hereafter '425).

Regarding claim 1: '621 discloses (**Fig. 1, 3**) a power supply comprising:

a voltage generating section (2, 3, 4) **3, 6, 9, 10** which generates a voltage to be supplied to a load **54**;

a drive control section (6) **66**which generates a drive signal **52** when supplied with a drive control voltage (**output of 74**) necessary for generating said drive signal, supplies said generated drive signal **52** to said voltage generating section (2, 3, 4) **3, 6, 9, 10** to drive and control said voltage generating section (2, 3, 4) **3, 6, 9, 10**; and

a drive-control voltage supply section (8) **51** which applies said drive control voltage (**output of 74**) to said drive control section (6) **66** when activated,

(Fig. 5, 6, 7) operates said drive control section (6) **66** after a predetermined time elapses since stopping of said drive control section (Col. 6, lines 44-53).

'621 does not specifically discloses stops said drive control section (6) when an output current to be supplied to said load becomes less than a preset current value.

'425 teaches that it is advantageously to stops the operation of the power factor converter when the judgment result is indicated to reducing its power consumption (Col. 1, lines 19-20, & Col. 2, lines 49-53), wherein stops said drive control section (6) when an output current to be supplied to said load becomes less than a preset current value (Col. 7, lines 61-67).

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated the stops the operation of the power factor converter into '621's invention taught by '425 stops said drive control section (6) **66** when an output current to be supplied to said load **54** becomes less than a preset current value '621's invention with a reasonable expectation of success because '425 teaches that it is advantageously to stops the operation of the power factor converter when the judgment result is indicated to reducing its power consumption (Col. 1, lines 19-20, & Col. 2, lines 49-53).

Regarding claim 2: '621 discloses (**Fig. 1**) wherein said voltage generating section comprises:

a transformer (T) **7** having a primary winding **12** and a secondary winding **13, 14**;

a DC voltage input section (2) **4, 5** which receives an AC voltage **1, 2** and applies a DC voltage that is said input AC voltage rectified and smoothed **3** to said primary winding **12** of said transformer (T) **7**;

a switching section (Q1) **8** which generates a voltage on said primary winding **12** of said transformer (T) **7** by switching a current flowing in said primary winding **12** of said transformer (T) **7**; and

a rectifying and smoothing section (4) **9** which rectifies and smoothes a voltage generated on said secondary winding **13** of said transformer (T) **7**, and

supplies that voltage to said load **54**, whereby said drive control section (6) **66** supplies a pulse signal for said switching section (Q1) **8** to switch said current to said switching section (Q1) **8** as the drive signal, thereby driving and controlling said switching section (Q1) **8**.

Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 5793621, hereafter '621) in view of Yamada et al. (US 6714425, hereafter '425) as applied respectively to claim(s) 1 above, and further in view of Yoshinaga et al. (US 20020145888).

Regarding claim 3: '621 discloses the limitations of the claim(s) 1 as discussed above, and further discloses (**Fig. 1, 3**) transformer (T) **7** has a third winding (n3) **15**, and

said drive-control voltage supply section (8) **51, fig. 3** comprises: a capacitor (C3) **79** which applies a charged voltage to said drive control section (6) **66** as the drive control voltage (**output of 74**);

a charge circuit section (13, 14, R21) **83, 84** which supplies a current to said capacitor (C3) **79** from said DC voltage input section (2) **62** of said voltage generating section (2, 3, 4) **3** to charge said capacitor **79** when said DC voltage input section (2) **62** starts inputting a DC voltage to said primary winding **12** of said transformer (T) **7**;

an auxiliary power supply section (7) **20** which rectifies a voltage generated on said third winding (n3) **15** of said transformer (T) **7** and applies that voltage (*see fig. 1, output of 20 applies to node 62*) to said capacitor (C3) **79** to charge said capacitor (C3) **79**;

a charge control section (17) **82, 85** which stops charging of said capacitor (C3) **79** from said charge circuit section (13, 14, R21) **83, 84** when the drive control voltage to be supplied to

said drive control section (6) **66** becomes equal to or greater than a preset voltage value (Col. 7, lines 20-42);

an operation stop section (15) **fig. 4**

a time measuring section (16) **64** which measures a time after said operation stop section (15) stops the operation of said drive control section (6) **66**, and causes said charge control section (17) **82, 85** to resume charging said capacitor (C3) **79** when a preset time elapses since measuring (Fig. 5-7).

'621 does not specifically discloses an operation stop section (15) which detects an output current to be supplied to said load, compares a current value of said detected output current with said preset current value, and

stops an operation of said drive control section (6) when the current value of said detected output current becomes less than the preset current value; and

Yoshinaga et al. teaches that it is desirable to have a comparator in a switching power supply capable of providing stable oscillation and output [0005], wherein an operation stop section (15) which detects an output current to be supplied to said load, compares a current value of said detected output current with said preset current value (**Fig. 1, CMP5**) [0037].

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have placed the current comparator '621's invention taught by Yoshinaga with a reasonable expectation of success because Yoshinaga et al. teaches that it is desirable to have a comparator in a switching power supply capable of providing stable oscillation and output [0005].

'425 teaches that it is advantageously to stops the operation of the power factor converter when the judgment result is indicated to reducing its power consumption (Col. 1, lines 19-20, & Col. 2, lines 49-53), wherein stops said drive control section (6) when an output current to be supplied to said load becomes less than a preset current value (Col. 7, lines 61-67).

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated the stops the operation of the power factor converter into '621's invention taught by '425 stops said drive control section (6) **66** when an output current to be supplied to said load **54** becomes less than a preset current value '621's invention with a reasonable expectation of success because '425 teaches that it is advantageously to stops the operation of the power factor converter when the judgment result is indicated to reducing its power consumption (Col. 1, lines 19-20, & Col. 2, lines 49-53).

Regarding claim 8: '621 discloses the limitations of the claim(s) 1 as discussed above, and further discloses (**Fig. 1, 3**) transformer (T) **7** has a third winding (n3) **15**, and

said drive-control voltage supply section (8) **51, fig. 3** comprises: a capacitor (C3) **79** which applies a charged voltage to said drive control section (6) **66** as the drive control voltage (**output of 74**);

a charge circuit section (R21) **83, 84** which supplies a current to said capacitor from said DC voltage input **62** section of said voltage generating section (2, 3, 4) **3** to charge said capacitor **79**;

an auxiliary power supply section (7) **20** which rectifies a voltage generated on said third winding (n3) **15** of said transformer (T) **7** and applies that voltage (*see fig. 1, output of 20 applies to node 62*) to said capacitor (C3) **79** to charge said capacitor (C3) **79**;

an operation stop section (15) **fig. 4**

a discharge control section (13, 17) **83, 82, 85** which discharges a voltage of said capacitor (C3) **79** when a discharge instruction signal is supplied; and

a time measuring section (16) **64** which supplies said discharge instruction signal to said discharge control section (13, 17) **83, 82, 85** when said operation stop section (15) **fig. 4** stops an operation of said drive control section (6) **66**, and stops supplying the discharge instruction signal to said discharge control section (13, 17) **83, 82, 85** when a preset time elapses after time measuring (fig. 5-7).

'621 does not specifically discloses an operation stop section (15) which detects an output current to be supplied to said load, compares a current value of said detected output current with said preset current value, and

stops an operation of said drive control section (6) when the current value of said detected output current becomes less than the preset current value; and

Yoshinaga et al. teaches that it is desirable to have a comparator in a switching power supply capable of providing stable oscillation and output [0005], wherein an operation stop section (15) which detects an output current to be supplied to said load, compares a current value of said detected output current with said preset current value (**Fig. 1, CMP5**) [0037].

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have placed the current comparator '621's invention taught by Yoshinaga with a reasonable expectation of success because Yoshinaga et al. teaches that it is desirable to have a comparator in a switching power supply capable of providing stable oscillation and output [0005].

'425 teaches that it is advantageously to stops the operation of the power factor converter when the judgment result is indicated to reducing its power consumption (Col. 1, lines 19-20, & Col. 2, lines 49-53), wherein stops said drive control section (6) when an output current to be supplied to said load becomes less than a preset current value (Col. 7, lines 61-67).

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated the stops the operation of the power factor converter into '621's invention taught by '425 stops said drive control section (6) **66** when an output current to be supplied to said load **54** becomes less than a preset current value '621's invention with a reasonable expectation of success because '425 teaches that it is advantageously to stops the operation of the power factor converter when the judgment result is indicated to reducing its power consumption (Col. 1, lines 19-20, & Col. 2, lines 49-53).

Regarding claim 9: '621 discloses (Fig. 1, 3) wherein said charge circuit section comprises a current supply section (14) **83, 84** which supplies a current to said capacitor (C3) **79**, and

said discharge control section comprises: a switch (13) **83** which is open at a time of activation when said DC voltage input section (2) **3** starts inputting the DC voltage **62**; and

a switch control section (17) **82, 85** which closes said switch (13) **83** to discharge the voltage of said capacitor (C3) **79**, when said operation stop section (15) **fig. 4** stops the operation of said drive control section (6) **66**.

Regarding claim 10: '621 discloses (Fig. 1, 3)wherein said charge circuit section comprises a resistor **63** inserted between said DC voltage input section (2) **3** and said capacitor (C3) **79**, and said discharge control section comprises:

a switch (13) **83** which is open at a time of activation when said DC voltage input section (2) **3** starts inputting the DC voltage; and a switch control section (17) **82, 85** which closes said switch (13) **83** to discharge the voltage of said capacitor (C3) **79**, when said operation stop section (15) **fig. 4** stops the operation of said drive control section (6) **66**.

Regarding claims 4 and 5: '621 discloses (**Fig. 1, 3**) wherein said charge circuit section **83, 84** is constituted by inserting, between said DC voltage input section (2) **3** and one end of said capacitor (C3) **79**:

a constant current supply section (14) **63** which supplies a constant current to said capacitor (C3) **79**; and

a switch (13) **83** which is closed at a time of activation when said DC voltage input **4, 5** section starts inputting the DC voltage.

Regarding claim 6: '621 discloses (**Fig. 1, 3**) wherein said charge control section comprises a switch control section (17) **82, 85** which stops charging of said capacitor (C3) **79** from said charge circuit section (13, 14, R21) **83, 84**,

but does not specifically discloses said time measuring section (16) **64** measures a time after said operation stop section (15) stops the operation of said drive control section (6), and outputs a switch-ON signal to close said switch (13) to said switch control section (17) when a preset time elapses since measuring, thereby resuming charging of said capacitor (C3).

Yoshinaga et al. teaches that it is desirable to have a comparator in a switching power supply capable of providing stable oscillation and output [0005], wherein said operation stop section (15) stops the operation (**Fig. 1, CMP5**) (*stop the operation by the switch Q5*) [0037].

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have placed the stop section by the switch **Q5** into '621's invention taught by Yoshinaga et al. for the time measuring section (16) **64** measures a time after said operation stop section (15) stops the operation of said drive control section (6) **66**, and outputs a switch-ON signal to close said switch (13) **81** to said switch control section (17) **82, 85** when a preset time elapses since measuring, thereby resuming charging of said capacitor (C3) **79** (Fig. 5-7) of '621's invention with a reasonable expectation of success because Yoshinaga et al. teaches that it is desirable to have a comparator in a switching power supply capable of providing stable oscillation and output [0005].

Regarding claim 7: '621 discloses wherein a resistor (R22) **80** is connected to both ends of said capacitor (C3) **79**, and said time measuring section (16) **64** considers that the preset time has elapsed when a voltage across said capacitor (C3) **79** becomes equal to or lower than a predetermined value after said operation stop section (15) **fig. 4** has stopped the operation of said drive control section (6) **66**, and causes said switch control section (17) **82, 85** to resume charging of said capacitor (C3) **79**.

Regarding claim 11: the method steps will be met during the normal operation of the apparatus described above in claims 3-7 and 8-10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Tran whose telephone number is 571-270-1269. The examiner can normally be reached on M-F 7:30-5:00, OFF every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NT

KARL EASTHOM
SUPERVISORY PATENT EXAMINER